$$r(t) = \tilde{\omega}\, a(t)$$

$$v(t) = \frac{dr}{dt} = \tilde{\omega}\, \frac{da}{dt}$$

$$v \equiv H\, r$$

$$H = \frac{1}{a}\, \frac{da}{dt}$$

$$\frac{1}{H} = \frac{a}{da/dt} = \frac{\text{size of universe}}{\text{speed of expansion}}$$

$$(m - M) = 5 \log_{10} d - 5$$

$$v \sim c\, z$$